REMARKS

Appreciation is hereby expressed to Examiner Diramio for the detailed and professional office action, and for withdrawing the finality of the previous rejection mailed January 16, 2009, as well as all previous rejections of claims under 35 U.SC. 103(a). The Examiner is also thanked for providing a detailed Response to Arguments concerning reasons why the rejections under 35 U.S.C. 103(a) over Kitajima, et al. in view of Huang, et al. were withdrawn. Claims 6-8, 11-15 and 17-20 remain in the application, claims 1-5, 9, 10 and 16 having been withdrawn at being directed to non-elected inventions.

Reconsideration is respectfully requested of the rejection of Claims 6-8, 14, 15, 18 and 19 under 35 U.S.C. 103(a) as being unpatentable over Kitajima, et al. (US 5,876,605), in view of Kadoya, Voute, et al., and Stone.

In the rejection, the examiner recognizes that Kitajima, et al. and Kadoya fail to disclose a microporous (plasma or serum separating) membrane having a porosity of not more than 25% and a mean roughness of not more than 100 nm. Nonetheless, the examiner concluded that it would be obvious to those skilled in the art to prepare the membrane of the filter apparatus of Kitajima, et al. with a porosity of less than 30%. The examiner reasons that this is obvious because Voute, et al. disclose the benefit of preparing microporous solid support matrices exhibiting low porosities (preferably with a pore volume of less than 30%) because the solid support matrices are particularly suited for separating or isolating large biological molecules, such as bioparticles and high molecular weight macromolecules.

However, it is respectfully urged that Voute, et al. merely disclose separation materials

made of dense mineral oxide solid support or micro beads comprising a mineral oxide matrix having a pore volume of less than 30% and an interactive network as described on page 5, line 31 to page 6, line 1. The particle sizes of these dense mineral oxide supports or microbeads are disclosed as being within the range of about 5 micro meters to 500 micrometers as described on page 6, lines 4 to 5.

In contrast, in column 6, lines 1-27, Kitajima, et al. disclose that the porosity of the microporous membrane is preferably 40 to 95%, more preferably 59 to 95% and further preferably 70 to 95%. Accordingly, the prior art as represented by the examiner's primary reference of Kitajima, et al., teaches using a microporous membrane with a high porosity, and Kitajima, et al. neither discloses nor suggests using a membrane with a porosity of not more than 30%.

Further, Kitajima, et al. disclose a miroporous membrane made of polysulfone. It is clear that the dense mineral oxide solid support or beads of Voute, et al. are far different from the polysulfone microporous membrane of Kitajima, et al. The dense mineral oxide solid supports or beads are not a film made of the polymer, but merely a mass of particles. Thus, as far as the solid supports or microbeads of Voute, et al. are different in structure and material from the membrane made of polysulfone in the filter apparatus of Kitajima, et al., and Kitajima, et al. teaches that a high porosity microporous membrane is preferable but does not disclose nor suggest not more than 30% porosity, those skilled in the art ought not to adopt the porous volume of less than 30% of Voute, et al. in the member of Kitajima, et al.

With reference to the combination of Kitajima, et al. and Kadoya, it is respectfully pointed out that Kadoya relates to an oil or air filter which is far different from a filter for

separating plasma or serum from blood as in the present invention. Accordingly, it is clear that the technical field of the filter of Kadoya is different from that of the present invention. Further, the filter of Kadoya was developed for preventing blinding or clogging of the filter member, and thus the feature of the present invention, i.e., increasing the difference between moving speeds of the plasma or serum and the corpuscles does not apply to the filters of Kadoya. It is respectfully urged that there is no motivation or logical reason to combine the filter shown in Kadoya with the apparatus disclosed in Kitajima, et al.; thus, the examiner's finding is based on mere hindsight.

Further, the examiner stated that it would be obvious to those skilled in the art to prepare the membrane of Kitajima, et. al. and Voute, et al. to have an optimum surface roughness of at least 5 microns as taught by Stone. The examiner apparently reasons that Stone teaches the benefit of preparing the membrane used in devices for removing the red blood cells from a blood sample with a certain effective roughness, preferably less than 5 microns.

Voute, et al., however, merely discloses the solid matrices made of the mineral oxides, which is far different in structure and material from the membrane of Stone or Kitajima, et al. as discussed above.

Stone discloses in column 1, lines 45-47, that it is desirable that the surface of the membrane have an effective roughness less than about 5 microns in order to prevent sticking of red blood cells on the surface thereof. However, as specifically described in column 1, lines 47-50, Stone clarifies the meaning of such language in lines 45-47 as follows:

"That is, the surface of the membrane has substantially no surfaces roughness larger than the size of red blood corpuscles so that red blood cells can be removed from the surface by wiping with a tissue."

It is, therefore, clear that Stone merely teaches that if the roughness is 5 microns or larger, red blood cells having a diameter of 6 to 8 micrometers are trapped in recesses on the surface and cannot be removed by wiping with the tissue. In other words, Stone merely describes the size of the roughness, depending on the size of the red blood cells.

In contrast, the surface roughness of not more than 100 nm in the present invention is employed not to prevent trapping of the red blood cells but to prevent rupture of the red blood cells, i.e.,hemolysis. Accordingly, Stone neither discloses nor suggests anything about such particular roughness for preventing rupture of red blood cells on the surface of the membrane at all.

It is, therefore very respectfully submitted that it would not be obvious to those skilled in the art to adopt the surface roughness of not more than 100 nm in the membrane of Kitajima, et al., because none of the cited prior art discloses such particular surface roughness. Consequently, the examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of Claim 11 and 20 under 35 U.S.C. 103(a) as being unpatentable over Kitajima, et al., in view of Kadoya, Voute, et al., and Stone as applied to claim 6 above, and further in view of Ayres.

The deficiencies of each of the examiner's primary and secondary references of Kitajima, et al., Kadoya, Voute, et al., and Stone is discussed above.

The Ayres reference relied upon as a fifth reference by the examiner fails to disclose a first filter member having the property of adsorbing fibrinogen contained in blood, plasma or fibrinogen solution. Moreover, Ayres does not disclose a filter apparatus having a separating

membrane with a porosity of not more than 25% and a mean surface roughness of not more than 100 nm. Consequently, it is very respectfully submitted that Ayres fails to cure the deficiencies of the other references in the examiner's combination of references. Therefore, the examiner would be justified in no longer maintaining this rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of Claim 12 under 35 U.S.C. 103(a) as being unpatentable over Kitajima, et al., in view of Kadoya, Voute, et al., and Stone as applied to claim 6 above, and further in view of Bell.

The deficiencies of each of the examiner's primary and secondary references of Kitajima, et al., Kadoya, Voute, et al., and Stone is discussed above.

There is no disclosure whatever in Bell of a plasma or serum separating membrane having a porosity of not more than 25% and a mean surface roughness of not more than 100 nm. Therefore, even though Bell may suggest using an anticoagulant component, the Bell reference fails to cure the deficiencies of the other references in this combination rejection. For this reason, it is respectfully urged that the examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of Claim 13 under 35 U.S.C. 103(a) as being unpatentable over Kitajima, et al., in view of Kadoya, Voute, et al., and Stone, as applied to claim 6 above, and further in view of Anraku.

The deficiencies of each of the examiner's primary and secondary references of Kitajima, et al., Kadoya, Voute, et al., and Stone is discussed above.

There is no disclosure whatever in Anraku of a plasma or serum separating membrane having a porosity of not more than 25% and a mean surface roughness of not more than 100 nm. Therefore, even though Anraku may suggest using a blood coagulation accelerator, the Anraku reference fails to cure the deficiencies of the other references in this combination rejection. For this reason, it is respectfully urged that the examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

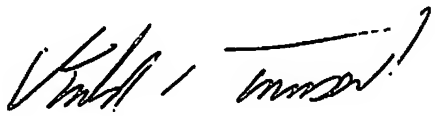
Reconsideration is respectfully requested of the rejection of Claim 17 under 35 U.S.C. 103(a) as being unpatentable over Kitajima, et al., in view of Kadoya, Voute, et al., and Stone, as applied to claim 6 above, and further in view of Chu.

The deficiencies of each of the examiner's primary and secondary references of Kitajima, et al., Kadoya, Voute, et al., and Stone is discussed above.

There is no disclosure whatever in Chu of a plasma or serum separating membrane having a porosity of not more than 25% and a mean surface roughness of not more than 100 nm. Therefore, even though Chu may suggest including a reaction surface containing an immobilized capture reagent, the Chu reference fails to cure the deficiencies of the other references in this combination rejection. For this reason, it is respectfully urged that the examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted,



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